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SEQUENCE LISTING

<10> Veltman, Ronald
Bout, Abraham

<120> Packaging systems for human recombinant adenovirus to
be used in gene therapy

<130> P20879US06

<140> 09/332,803

<141> 1999-06-14

<150> 09/065,752 US

<151> 1998-04-24

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<150> PCT/NL99/00235

<151> 1999-04-23

<160> 69

<170> PatentIn Ver. 2.1

<210> 1

<211> 23

<212> DNA

<213> Artificial Sequence

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<223> Description of Artificial Sequence: oligo linker

<220>

<221> misc_feature

<222> (1)..(23)

<223> /Note="linker with PacI site"

<400> 1

aattgtctta attaaccgct taa

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BB
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<223> /Note="linker with Pac site"

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aattgtctta attaaccgc

19

<210> 3
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<220>
<221> misc_feature
<222> (1)..(19)
<223> /Note="linker with Pac site"

<220>
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aattgcggtt aattaagac

19

<210> 4
<211> 47
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<222> (1)..(47)
<223> /Note="primer LTR-1"

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<223> Description of Artificial Sequence:primer

<400> 4

ctgtacgtac cagtgcactg gcctaggcat gaaaaatac ataaactg

47

<210> 5

<211> 64

<212> DNA

<213> Artificial Sequence

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<223> /Note="primer LTR-2"

BD
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<223> Description of Artificial Sequence: primer

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gcggatcctt cgaaccatgg taagcttgg accgcttagcg ttaaccgggc gactcagtca 60

atcg 64

<210> 6

<211> 28

<212> DNA

<213> Artificial Sequence

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<222> (1)..(28)

<223> /Note="primer HSA1"

<220>

<223> Description of Artificial Sequence: primer

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gcgccaccat gggcagagcg atggtggc

28

<210> 7

<211> 50

<212> DNA
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<220>
<223> Description of Artificial Sequence: primer

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gttagatcta agcttgtcga catcgatcta ctaacagtag agatgtagaa 50

Bd
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<222> (1)..(21)
<223> /Note="primer 1"

<220>
<223> Description of Artificial Sequence: primer

<400> 8
gggtattagg ccaaaggcgc a 21

<210> 9
<211> 33
<212> DNA
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<222> (1)..(33)
<223> /Note="primer 2"

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<223> Description of Artificial Sequence: primer

<400> 9

gatcccatgg aagcttgggt ggcgaccca gcg

33

<210> 10

<211> 36

<212> DNA

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<221> primer_bind

<222> (1)..(36)

<223> /Note="primer 3"

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<223> Description of Artificial Sequence: primer

(B)
<400> 10

gatcccatgg ggatcctta ctaagttaca aagcta

36

<210> 11

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

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<400> 11

gtcgctgttag ttggactgg

19

<210> 12

<211> 25

<212> DNA

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<221> primer_bind

<222> (1)..(25)

<223> /Note="primer"

<220>

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<400> 12

cgataagctt aattccttg tggttt

25

<210> 13

<211> 33

<212> DNA

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BB <220>

<221> primer_bind

<222> (1)..(33)

<223> /Note="primer"

<220>

<223> Description of Artificial Sequence: primer

<400> 13

cttaggtaac ccagtagatc cagaggagtt cat

33

<210> 14

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(45)

<223> /Note="hac, haw Potential hairpin that can be
formed after digestion with restriction
endonuclease Asp7I8 in both the correct and in the
reverse orientation, respectively"

<220>

<223> Description of Artificial Sequence: synthetic DNA sequence

<400> 14

gtacactgac ctagtccgc cgggcaag cccggcggc actag 45

<210> 15

<211> 63

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(63)

<223> /Note="primer polyL-ITR"

<220>

<223> Description of Artificial Sequence: primer

<400> 15

aactgcagat ctatcgatac tagtcaattg ctcgagtcta gactacgtca cccgccccgt 60
tcc 63

<210> 16

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(39)

<223> /Note="primer ITR-BSN"

<220>

<223> Description of Artificial Sequence: primer

<400> 16

cgggatccgt cgacgcggcc gcatcatcaa taatatacc 39

<210> 17
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (1)..(10)
<223> /Note="phosphorylated NSI linker"

<220>
<223> Description of Artificial Sequence: linker NSI

<400> 17
cgatgcacg 10

<210> 18
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(32)
<223> /Note="primer 1"

<220>
<223> Description of Artificial Sequence: primer

<400> 18
gggtggcca gggtacctct aggctttgc aa 32

<210> 19
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(29)
<223> /Note="primer 2"

<220>

<223> Description of Artificial Sequence: primer

<400> 19

ggggggatcc ataaacaagt tcagaatcc

29

<210> 20

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(21)

<223> /Note="linker"

<220>

<223> Description of Artificial Sequence: linker

<400> 20

agcttgaatt cccgggtacc t

21

<210> 21

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(21)

<223> /Note="linker"

<220>

<223> Description of Artificial Sequence: linker

<400> 21

ctagaggta cccgggaattc a

21

<210> 22

<211> 39

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(39)

<223> /Note="primer ITR-EPH"

<220>

<223> Description of Artificial Sequence: primer

<400> 22

cggaattctt aattaagtta acatcatcaa taatatacc

39

<210> 23

<211> 66

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(66)

<223> /Note="primer ITR-pIX"

<220>

<223> Description of Artificial Sequence: primer

<400> 23

acggcgcgcc ttaagccacg cccacacatt tcagtacgta cttagtctacg tcacccgccc 60

cgttcc 66

<210> 24

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(26)

<223> /Note="primer Ad3'/Forw"

<220>

<223> Description of Artificial Sequence: primer

<400> 24

cggaaattcat caggataggg cggtgg

26

<210> 25

<211> 44

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(44)

<223> /Note="primer Ad3'/Rev"

<220>

<223> Description of Artificial Sequence: primer

<400> 25

cgggatccta tcgatattta aatgttttag ggccggagtaa cttg

44

BBJ
<210> 26

<211> 37

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(37)

<223> /Note="primer PA-pIX1"

<220>

<223> Description of Artificial Sequence: primer

<400> 26

taagccacta gtacgtactg aaatgtgtgg gcgtggc

37

<210> 27

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(43)

<223> /Note="primer PA-pIX2"

<220>

<223> Description of Artificial Sequence: primer

<400> 27

ttaagccacg cccacacatt tcagtacgta cttagtggctt aat

43

<210> 28

<211> 10

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(10)

<223> /Note="Sal linker"

<220>

<223> Description of Artificial Sequence: linker

<400> 28

ttaagtcgac

10

<210> 29

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(23)

<223> /Note="Pac linker"

<220>

<223> Description of Artificial Sequence: linker

<400> 29

aattgtctta attaaccgca att

23

<210> 30

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(67)

<223> /Note="oligo linker sequence PLL-1"

<220>

<223> Description of Artificial Sequence: linker

<400> 30

gccatcccta ggaagcttgg taccggtaaa ttgcgtacgt ttaacggatc ctctagacga 60

gatctgg 67

<210> 31

<211> 67

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(67)

<223> /Note="oligo linker sequence PLL-2"

<220>

<223> Description of Artificial Sequence: linker

<400> 31

ccagatctcg tctagaggat ccgttaacgc tagcgaattc accggtagcca agtttcctag 60

ggatggc 67

<210> 32

<211> 39
<212> DNA
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<220>
<221> primer_bind
<222> (1)..(39)
<223> /Note="primer CMVplus"

<220>
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<400> 32
gatcggtaacc actgcagtgg tcaatattgg ccattagcc

39

<210> 33
<211> 29
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(29)
<223> /Note="primer CMVminA"

<220>
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<400> 33
gatcaaggctt ccaatgcacc gttcccgac

29

<210> 34
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(23)
<223> /Note="primer DELTAE2A.SnaBI"

<220>

<223> Description of Artificial Sequence: primer

<400> 34

ggcgtacgta gccctgtcga aag

23

<210> 35

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(35)

<223> /Note="primer DELTAE2A.DBP-start"

<220>

<223> Description of Artificial Sequence: primer

<400> 35

ccaatgcatt cgaagtactt ccttctcccta taggc

35

<210> 36

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(22)

<223> /Note="primer DELTAE2A.DBP-stop"

<220>

<223> Description of Artificial Sequence: primer

<400> 36

ccaatgcata cggcgcaagac gg

22

<210> 37

<211> 21

<212> DNA
<213> Artificial Sequence

<220>
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<223> /Note="primer DELTAE2A.BamHI"

<220>
<223> Description of Artificial Sequence: primer

<400> 37
gaggtggatc ccatggacga g 21

<210> 38
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
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<222> (1)..(20)
<223> /Note="primer Ad101"

<220>
<223> Description of Artificial Sequence: primer

<400> 38
tgattcacat cggtcagtgc 20

<210> 39
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (1)..(42)
<223> /Note="oligonucleotide NY-up"

<220>

<223> Description of Artificial Sequence: oligonucleotide

<400> 39

cgacatatgt agatgcatta gtttgttta ttttcaacg tg 42

<210> 40

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(18)

<223> /Note="oligonucleotide NY-down"

<220>

<223> Description of Artificial Sequence: oligonucleotide

<400> 40

ggagaccact gccatgtt 18

<210> 41

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(18)

<223> /Note="oligonucleotide DELTAhex1"

<220>

<223> Description of Artificial Sequence: oligonucleotide

<400> 41

cctggtgctg ccaacagc 18

<210> 42

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(30)

<223> /Note="oligonucleotide DELTAhex2"

<220>

<223> Description of Artificial Sequence: oligonucleotide

<400> 42

ccggatccac tagtgaaaag cggcgcgcg 30

<210> 43

<211> 35

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(35)

<223> /Note="oligonucleotide DELTAhex3"

<220>

<223> Description of Artificial Sequence: oligonucleotide

<400> 43

ccggatccaa ttgagaagca agcaacatca acaac 35

<210> 44

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<221> misc_feature

<222> (1)..(19)

<223> /Note="oligonucleotide DELTAhex4"

<220>

<223> Description of Artificial Sequence: oligonucleotide

<400> 44

gagaaggcataggctg

19

<210> 45

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(20)

<223> /Note="primer DP5-F"

<220>

<223> Description of Artificial Sequence: primer

<400> 45

ctgttgctgc tgctaatagc

20

<210> 46

<211> 32

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(32)

<223> /Note="primer DP5-R"

<220>

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<400> 46

cgcggatcct gtacaactaa gggaaataca ag

32

<210> 47

<211> 33

<212> DNA

<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(33)
<223> /Note="primer DP3-F"

<220>
<223> Description of Artificial Sequence: primer

<400> 47
cgccggatccc ttaaggcaag catgtccatc ctt 33

<210> 48
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(27)
<223> /Note="primer DP3-3R"

<220>
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<400> 48
aaaacacgtt ttacgcgtcg acctttc 27

<210> 49
<211> 12
<212> DNA
<213> Artificial Sequence

<220>
<221> misc_feature
<222> (1)..(12)
<223> /Note="NOT-I linker"

<220>
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<400> 49

aattgcggcc gc

12

<210> 50

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(21)

<223> /Note="primer Ea-1"

<220>

<223> Description of Artificial Sequence: primer

<400> 50

cgtgttgtt atttatacc g

21

<210> 51

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(21)

<223> /Note="primer Ea-2"

<220>

<223> Description of Artificial Sequence: primer

<400> 51

tgcgtcaactgg gtggaaagcc a

21

<210> 52

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind
<222> (1)..(21)
<223> /Note="primer Ea-3"

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<223> Description of Artificial Sequence: primer

<400> 52
tacccggcgt cctaaaatgg c 21

<210> 53
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(20)
<223> /Note="primer Ea-5"

<220>
<223> Description of Artificial Sequence: primer

<400> 53
tggacttgag ctgtaaacgc 20

<210> 54
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(21)
<223> /Note="primer Ep-2"

<220>
<223> Description of Artificial Sequence: primer

<400> 54
gcctccatgg aggtcagatg t 21

<210> 55
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(20)
<223> /Note="primer Eb-1"

<220>
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<400> 55
gcttgagccc gagacatgtc 20

<210> 56
<211> 24
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<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(24)
<223> /Note="primer Eb-2"

<220>
<223> Description of Artificial Sequence: primer

<400> 56
cccctcgagc tcaatctgtatctt 24

<210> 57
<211> 27
<212> DNA
<213> Artificial Sequence

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<221> primer_bind
<222> (1)..(27)

<223> /Note="primer SV40-1"

<220>

<223> Description of Artificial Sequence: primer

<400> 57

gggggatccg aacttgttta ttgcagc

27

<210> 58

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(25)

<223> /Note="primer SV40-2"

<220>

<223> Description of Artificial Sequence: primer

<400> 58

gggagatcta gacatgataa gatac

25

<210> 59

<211> 27

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(27)

<223> /Note="primer Ad5-1"

<220>

<223> Description of Artificial Sequence: primer

<400> 59

gggagatctg tactgaaatg tgtggc

27

<210> 60
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(24)
<223> /Note="primer Ad5-2"

<220>
<223> Description of Artificial Sequence: primer

<400> 60
ggaggctgca gtctccaacg gcgt 24

Bd
<210> 61
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(27)
<223> /Note="primer ITR1"

<220>
<223> Description of Artificial Sequence: primer

<400> 61
gggggatcct caaatcgta cttccgt 27

<210> 62
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(27)
<223> /Note="primer ITR2"

<220>
<223> Description of Artificial Sequence: primer

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gggtctaga catcatcaat aataaac

27

<210> 63
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(32)
<223> /Note="primer PCR/MLP1"

<220>
<223> Description of Artificial Sequence: primer

<400> 63
ggcgaattcg tcgacatcat caataatata cc 32

<210> 64
<211> 32
<212> DNA
<213> Artificial Sequence

<220>
<221> primer_bind
<222> (1)..(32)
<223> /Note="primer PCR/MLP2"

<220>
<223> Description of Artificial Sequence: primer

<400> 64
ggcgaattcg gtaccatcat caataatata cc 32

<210> 65
<211> 17

<212> DNA

<213> Artificial Sequence

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<221> primer_bind

<222> (1)..(17)

<223> /Note="primer PCR/MLP3"

<220>

<223> Description of Artificial Sequence: primer

<400> 65

ctgtgtacac cggcgca

17

<210> 66

<211> 49

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(49)

<223> /Note="primer HP/asp1"

<220>

<223> Description of Artificial Sequence: primer

<400> 66

gtacactgac ctatgccgc ccgggaaagc ccgggcggca ctagtcag

49

<210> 67

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(50)

<223> /Note="primer HP/asp2"

<220>

<223> Description of Artificial Sequence: primer

<400> 67

gtacctgacc tagtgccgcc cggggcttgc ccgggcggca ctaggtcagt 50

<210> 68

<211> 55

<212> DNA

<213> Artificial Sequence

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<222> (1)..(55)

<223> /Note="primer HP/cla1"

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(Bd)
one's

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gtacattgac ctatgtccgc ccgggcaaag cccgggcggc actaggtaa tcgat 55

<210> 69

<211> 54

<212> DNA

<213> Artificial Sequence

<220>

<221> primer_bind

<222> (1)..(54)

<223> /Note="primer HP/cla2"

<220>

<223> Description of Artificial Sequence: primer

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gtacatcgat tgacctagtg ccgccccgggt ttggccgggc ggcacttaggt caat 54